

REMARKS

By this amendment: (1) withdrawn claims 13-27 are deleted without prejudice nor disclaimer; (2) the only full paragraph on page 37 is amended to provide an antecedent for the words "stroke time" as used in claim 9 to refer to stroke time of the multiplexer; (3) new claims 28-30 are added to better define the invention; (4) two sheets of drawings containing FIGS. 19, 20 and 24 on them are submitted; and (5) two annotated sheets of drawings containing FIGS. 19, 20 and 24 are submitted showing the changes made to FIGS. 19 and 24. The drawing changes are to correct a misspelled word on the drawings as required by the Examiner.

Applicant affirms the election of invention of Group I, claims 1-12.

The rejection of claims 1-12 under 35 U.S.C. 112, second paragraph, is respectfully traversed as applied to the claims now in this application. Claim 1, as amended, no longer utilizes the word "stroke" but instead utilizes the word "time division". However, the word "stroke" in claim 1 did not refer to the stroke of the piston of a pump but instead referred to the stroke time of a multiplexer. The word "stroke time" as used in claim 9 does not render claim 9 indefinite under 35 U.S.C. 112 since a person of ordinary skill in the art would understand the claim and its scope.

Claims 1 and 10 are not rendered indefinite by failing to recite the nature of the liquid that is being pumped. That question goes to the scope of the claim not to its definiteness under 35 U.S.C. 112. Applicant is entitled to the scope of protection permitted by the prior art and need not limit the claim unduly.

Of course the question as to whether a liquid (not recited in claim 1) is a solvent or an analyte is trivial. The liquid chromatographic system of claim 1 operates in the manner claimed regardless of the names given to the solvent that is normally pumped in a liquid chromatographic system to separate analyte or to the analyte that is the subject of the chromatographic run. That claim is directed to the system not the liquids that are pumped by the system.

The rejections of claims 1, 4, 9 and 12 under 35 U.S.C. 103 as being unpatentable over Dourdeville, et al., in view of Quake, et al., and further in view of Brogardh, et al., is respectfully traversed. Claim 1 recites a time division multiplex circuit in which input means receive energy from photocells for a large portion of a multiplex cycle time and provide it to the multiplex circuit output terminals during a single time division. None of these references teach this principal or the advantages that it has at all. The mere existence in the prior art of flow cells, the existence of time division multiplexing and the existence of sample and hold circuits does not teach one how to combine these types of components to achieve the result of obtaining a sufficiently accurate reading from a plurality of flow cells with the economy of a multiplex reading of the flow cells rather than having individual circuitry for each flow cell to perform its analysis all at the same time. There is no suggestion in any of the prior art references on how to combine these three components into the inventive combination nor has any reasoning or logic been supplied to create a *prima facie* case that it would have been obvious how to combine them to a person of ordinary skill in the art at the time of invention.

Moreover, claim 4, which depends from claim 2, also qualifies the circuit as being a non-switching circuit with low band width. This improves its noise characteristics which is important in a multiplex circuit. There is no suggestion of this in any of the references. Similarly, claim 4 is directed to a special flow cell arrangement in which the ends of light conductors are within the flow cell spaced a short distance from each other. The Examiner is mistaken in believing that this concept is taught by Dourdeville, et al. Dourdeville, et al., increases the light path in the flow cell by utilizing a cylindrical lighted guide surrounding the flow cell to receive light through as long a path as possible in the fluid. Actually, this teaches directly away from the invention in which the flow path is kept small to avoid the need for lens to transmit light from one light guide to another light guide thus reducing the cost of the flow cell. Claim 9, like claim 1, is directed to a system in which the energy from photodetectors is stored over a long period of time while permitting a multiplex circuit which receives energy over a short period of time.

Claims 5-8 depend directly or indirectly from claim 4 and are patentable for the same reasons.

Claims 10-12 depend directly from claim 9 and are patentable for the same reasons. Moreover, claim 12 is directed to a system in which two light conductors are spaced adjacent to each other in the flow cell, sufficiently close so that a special lens from a light transmitting one of the conductors in the flow cell and a special lens to receive the light are not necessary, utilizing light from a single small defraction grading for a plurality of light guides that are to be used in that flow cell receiving the signals by photo diodes placed immediately adjacent to the light guides to avoid a more expensive lens arrangement. None

of these concepts are taught by any of the cited references.

The rejection of claims 2-3 over Dourdeville, et al., Quake, et al., and Brogardh, et al., is traversed for the same reasons. These claims depend from claim 1 and distinguish patentably over that combination of references as explained above. Moreover, claims 2 and 3 are directed to features which improve the noise characteristics, which features are not disclosed in the references. The Examiner argues that it is unnecessary to provide a teaching of the concepts covered by claims 2 and 3 apparently because they are design criteria. However, the Examiner is mistaken. Claims 2 and 3 do not recite design criteria. They recite structure, namely a non-switching circuit with low band width and a circuit with a fast rise time and flat topped response. These structural elements provide improved sensitivity, which of course is a design objective used by the multitude of engineers who design measuring instruments or communication equipment around the world. The mere fact that a circuit has a desirable characteristic which every designer would love to have does not make the structure used to accomplish those benefits obvious to a person of ordinary skill in the art. The U.S. Patent Office has the burden of proof of showing that those structural elements would have been obvious in the claimed combination to a person of ordinary skill in the art.

The Examiner in arguing that the recitation of the range of distances between the two ends of the light conductors would be obvious over Dourdeville, et al., points out that Dourdeville, et al., says the light path would depend on the application. That is true but Dourdeville, et al., in designing an application for a flow cell teaches that the light path should be as long as possible whereas this invention relies on a short light path to achieve

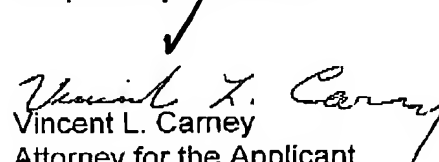
an advantage not taught by Dourdeville, et al. It is not obvious to a person of ordinary skill in the art to utilize applicant's novel structure because another patent teaches another entirely different structure and teaches the person of ordinary skill in the art to avoid the claimed structure. This type of teaching is strong evidence of patentability not evidence of obviousness.

Claims 7 and 8 are not replications of Dourdeville, et al.,'s system. Claims 7 and 8 are directed to a plurality of relatively inexpensive flow cells in which light conductors are within the flow cell with their ends adjacent to each other and a short light path between them. Dourdeville, et al., teaches a long light path and a design entirely different than that recited in claims 7 and 8. No amount of duplication of Dourdeville, et al.,'s device will cover the inventive subject matter of claims 7 and 8.

New claims 28-30 depend directly or indirectly from claim 4 and are patentable for the same reasons.

Since each of claims in this application are proper under 35 U.S.C. 112 and patentable under 35 U.S.C. 102 and 103, it is respectfully requested that his application be passed to issue.

Respectfully submitted,


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Attachments